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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/074,021	02/14/2002	Jun Azuma	32739M073	5632

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EXAMINER
RODEE, CHRISTOPHER D

ART UNIT	PAPER NUMBER
1756	5

DATE MAILED: 08/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/074,021	Applicant(s) AZUMA ET AL.	
	Examiner Christopher D RoDee	Art Unit 1756	

-- The MAILING DATE of this communication appears on th cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 July 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 7-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 7-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Response to Amendment

The indicated allowability of claim 6, which has its limitations now present in claim 1, is withdrawn in view of the newly discovered reference(s) to Tsuchiya in US Patent 5,740,498. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-3 and 7-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Omokawa *et al.* in US Patent 6,451,493 in view of *Organic Photoreceptors for Imaging Systems* to Borsenberger, pp. 6-17, and further in view of Matsuura *et al.* in US Patent 5,604,574, still further in view of Tsuchiya in US Patent 5,740,498.

As discussed in the last Office action, Omokawa discloses a single layer-type photoconductor having a conductive substrate and a single photosensitive layer that contains a charge generation compound, an electron transporting compound, a hole transporting compound, and a polycarbonate binder resin (Abstract). This photoconductor is positively chargeable and has reduced toner deposition on the surface of the photoreceptor because of the specific binder resin (col. 3, l. 5-27). A "ditry background" problem is reduced. A preferred binder resin is given by the formula spanning columns 8 and 9, which has 85 mol % of the X unit, 14.9 mol % of the Y unit, and 0.1 % of the Z unit. This resin is used in the photosensitive layer in an amount of from 10 to 90 weight %, preferably 20 to 80 weight % (col. 9, l. 61-67).

Example 1 produces a photosensitive layer with 52.5 weight % of the resin given by the formula spanning columns 8 and 9. In Example 2, this same resin is mixed with a bisphenol-Z polycarbonate (col. 9, l. 40). The reference states that the photoconductor can be used in a variety of copier (i.e., imaging apparatus) systems, such as those with laser, LED, or halogen exposure sources, corotron, scorotron, or contact chargers, and one or two-component development systems (col. 17, l. 34-44)

The reference does not disclose the specifics of the apparatus.

Borsenberger discloses the conventional steps in the electrophotographic process as including a charging step, an exposure step, a development step, a transfer step, a fixing step, a cleaning step, and an erasing step (pp. 6-17). Figure 5 depicts a typical apparatus having each of the means for these steps located around the periphery of the photoreceptor drum. This apparatus also has rollers transporting the paper to the transfer position. On page 16, Borsenberger notes that cleaning blades are typically used in the art to remove the residual toner on the photoreceptor after development and transfer.

Matsuura also discloses a typical copying apparatus that uses a drum-shaped photoconductor in Figure 3 (col. 10, l. 34+). The photoreceptor (i.e., photoconductor) used in the apparatus may be one having a single photoconductive layer (col. 4, l. 1-4). The surface layer of this photoreceptor contains polycarbonate resins because it is contacted by an elastic cleaning blade **10** of the apparatus (col. 4, l. 49 - col. 5, l. 42). The loading weight of the blade against the photoreceptor is between 5 and 40 g/cm (col. 8, l. 16-36) while the contact angle is between 10° and 45° (col. 8, l. 32-35). Example 1 uses a cleaning blade with a contact angle of 20° and a loading weight of 18 g/cm.

Tsuchiya discloses that electrophotographic imaging forming apparatuses typically have a registration roller pair **3** having upper **1** and lower **2** rollers and a paper dust removal device **5**

for transporting paper to the transfer section of the imaging apparatus. The paper dust removal device **5** is provided on the side of the paper **4** that has the image transferred to it (col. 1, l. 19 - col. 2, l. 53; Figure 8). Tsuchiya discloses a specific imaging apparatus (Figure 1) having main body **100** comprises a paper storage portion **10** disposed at a lower portion thereof, a sheet transport unit **20** disposed above the paper storage portion **10**, an imaging assembly **30** arranged above the sheet transport unit **20**, a fixing unit **40** disposed downstream of the imaging assembly **30** with respect to a sheet transport direction, and an optical unit **50** provided above the imaging assembly **30** and fixing unit **40**. The sheet transport unit **20** has a registration roller pair **23** comprising an upper roller **26** and a lower roller **27** and a paper dust removal device **28** for removing paper dust from roller **26**, which is on the transfer side of the paper coming from the paper storage bin **10** (col. 4, l. 43 - col. 6, l. 52).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the photoconductor of Omokawa in the apparatus of Matsuura because Brosenberger's disclosure shows that an apparatus, such as disclosed by Matsuura, is conventionally used to automate the production of copies when photoconductive imaging members are employed. The artisan concerned with the formation of "dirty background" as in Omokawa would look for an automating apparatus taught to minimize residual toner on the surface of the photoconductor. Matsuura discloses an apparatus that removes residual toner and toner components from the surface of the photoconductor (col. 2, l. 60 - col. 3, l. 11) and that reduces the formation of white and black spots and black streaks formed by residual toner. The artisan would have been expected to optimize the elastic cleaning blade's contact angle and loading weight in order to optimize removal of the toner material from the photoconductor. It would also have been obvious to add registration rollers and a paper dust removing device to the apparatus of Matsuura because Tsuchiya teaches that such a combination of components is

well known in the art and aids image accuracy by removing paper that would affect the components of the image device (e.g., photoreceptor drum).

Claims 19 and 20 are included with this rejection because the wear rate is determined by the manner in which the apparatus is used as evidence by the drum driving time and drum peripheral speed parameters. As noted above, "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus." See *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). Because the combined art discloses and suggests cylindrical drum shaped image carriers, the art addresses the patentable limitations of the apparatus claims. The Examiner suggests that the wear rate limitation be removed from claim 19, as well as claim 20, because it provides no limitation to the claims.

Double Patenting

Applicant is advised that should claims 9, 13, 17, and 19 be found allowable, claims 10, 14, 18, and 20, respectively, will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher D RoDee whose telephone number is 703 308-2465. The examiner can normally be reached on most weekdays from 6 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 703 308-2464. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-0661.

cdr
18 August 2003

CHRISTOPHER RODEE
PRIMARY EXAMINER